In the Claims

1. (Withdrawn) A composition comprising:

(a) a biologically compatible structural component; and

(b) a biobeneficial component comprising a copolymer having a biobeneficial or bioactive moiety.

2. (Withdrawn) The composition of Claim 1 wherein the biologically compatible structural component comprises a linear acrylic homopolymer or a linear acrylic copolymer.

3. (Withdrawn) The composition of Claim 1 wherein the copolymer of the biobeneficial component additional has an acrylate moiety.

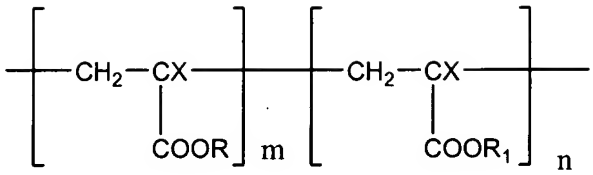
4. (Withdrawn) The composition of Claim 1 coated onto an implantable medical device.

5. (Withdrawn) The composition of Claim 1 wherein the mass ratio between the structural component and the biobeneficial component is between about 99:1 and about 1:1.

6. (Withdrawn) The composition of Claim 1 wherein the mass ratio between the structural component and the biobeneficial component is between about 19:1 and about 9:1.

7. (Withdrawn) The composition of Claim 1 wherein the mass ratio between the structural component and the biobeneficial component is about 3:1.

8. (Withdrawn) The composition of Claim 2 wherein the acrylic homopolymer or linear acrylic copolymer has the structure:



wherein

(a) X is hydrogen or methyl group;

(b) each of R and R_1 is independently methyl, ethyl, n-propyl, iso-propyl, n-butyl, sec-butyl, iso-butyl, tert-butyl, lauryl, or 2-hydroxyethyl;

(c) m is a positive integer; and

(d) n is 0 or a positive integer.

9. (Withdrawn) The composition of Claim 2 wherein the acrylic homopolymer or linear acrylic copolymer is poly(methylmethacrylate), poly(ethylmethacrylate), poly(n-propyl methacrylate), poly(iso-propylmethacrylate), poly(n-butylmethacrylate), poly(n-laurylmethacrylate), poly(2-hydroxyethylmethacrylate), poly(methylmethacrylate-co-2-hydroxyethyl methacrylate), poly(n-butylmethacrylate-co-2-hydroxyethyl methacrylate), or mixtures thereof.

10. (Withdrawn) The composition of Claim 1 wherein the biobeneficial component includes random, block, graft or brush copolymers.

11. (Withdrawn) The composition of Claim 10 wherein the block copolymers include AB-, ABA-, BAB-, ABC-, or ABCBA-block copolymers.

12. (Withdrawn) The composition of Claim 1 wherein the biobeneficial moiety includes fragments derived from poly(alkylene glycols), superoxide dismutate-mimetics (SODm),

diazenium diolate type nitric oxide donors, polycationic peptides, polysaccharides, pyrrolidone, vitamin E, sulfonated dextrane, β-phenoxyethanol, N,N-dimethylamino-2-ethanol, mannose-6-phosphate, sulfonic acid, derivatives of sulfonic acid, or mixtures thereof.

13. (Withdrawn) The composition of Claim 12 wherein the poly(alkylene glycols) are poly(ethylene glycol), poly(propylene glycol), poly(tetramethylene glycol), poly(ethylene glycol-co-propylene glycol), poly(ethylene oxide-co-propylene oxide), or mixtures thereof.

14. (Withdrawn) The composition of Claim 12 wherein the polycationic peptides are poly(L-arginine), poly(D-arginine), poly(D,L-arginine), poly(L-lysine), poly(D-lysine), poly(δ-guanidino-α-aminobutyric acid), a racemic mixture of poly(L-arginine) or poly(D-arginine), or mixtures thereof.

15. (Withdrawn) The composition of Claim 12 wherein the polysaccharides are heparin or derivatives thereof, glycosaminoglycans, keratan sulfate, chondroitin sulfate, dermatan sulfate, hyaluronic acid, hyaluronates, or mixtures thereof.

16. (Withdrawn) The composition of Claim 15 wherein the derivatives of heparin are heparinoids, heparin having a hydrophobic counterion, heparan sulfate, heparin salts, or mixtures thereof.

17. (Withdrawn) The composition of Claim 16 wherein the heparin salts are sodium heparin, potassium heparin, lithium heparin, calcium heparin, magnesium heparin, adrenalin sodium, or mixtures thereof.

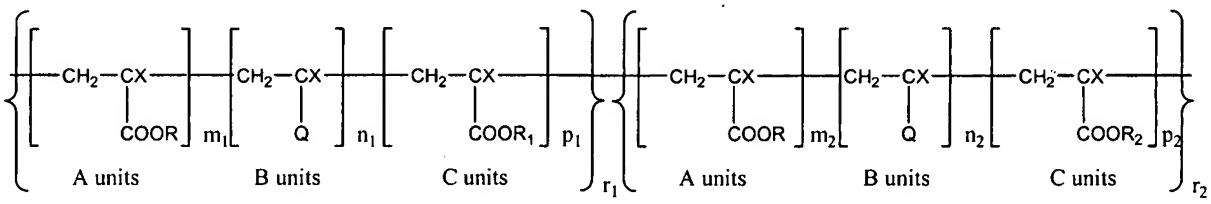
18. (Withdrawn) The composition of Claim 12 wherein the derivatives of sulfonic acid are propanesulfonic acid, 2-methyl-1-propanesulfonic acid, benzenesulfonic acid, 3-methoxy-2-hydroxypropanesulfonic acid, or mixtures thereof.

19. (Withdrawn) The composition of Claim 3 wherein the mass ratio between the acrylate moiety and the biobeneficial moiety is between about 99:1 and about 1:1.

20. (Withdrawn) The composition of Claim 3 wherein the mass ratio between the acrylate moiety and the biobeneficial moiety is between about 19:1 and about 9:1

21. (Withdrawn) The composition of Claim 3 wherein the mass ratio between the acrylate moiety and the biobeneficial moiety is about 3:1.

22. (Withdrawn) The composition of Claim 1 wherein the copolymer composing the biobeneficial component has the formula:



wherein

(a) m_1, n_1, p_1, r_1, m_2, n_2, p_2, and r_2 are all integers;

(b) $m_1 \geq 0$, $n_1 > 0$, $p_1 \geq 0$, $r_1 > 0$; $m_2 \geq 0$, $n_2 > 0$, $p_2 \geq 0$, $r_2 > 0$; and

(c)

(i) if $m_1 = 0$, then $p_1 > 0$;

(ii) if $p_1 = 0$, then $m_1 > 0$; and

(iii) if $m_2 = 0$, then $p_2 > 0$; and

(iv) if $p_2 = 0$, then $m_2 > 0$; and

(v) r_1 and r_2 are the same or different;

(vi) m_1 and m_2 are the same or different;

(vii) n_1 and n_2 are the same or different; and

(viii) p_1 and p_2 are the same or different;

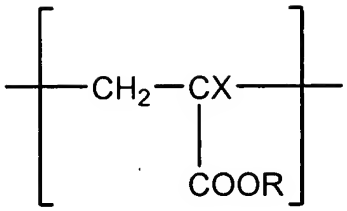
(d) X is hydrogen or methyl group;

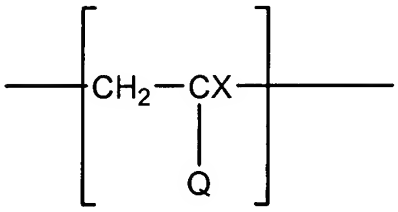
(e) each of R and R_1, independently, is methyl, ethyl, n-propyl, iso-propyl, n-butyl, sec-butyl, iso-butyl, tert-butyl, lauryl, or 2-hydroxyethyl; and

(f) Q is a fragment providing the copolymer with biobeneficial or bioactive properties.

23. (Withdrawn) The composition of Claim 1 wherein the copolymer composing the biobeneficial component is poly(ethylene glycol)-block-poly(n-butylmethacrylate)-block-poly(ethylene glycol), poly(n-butylmethacrylate)-block-poly(ethylene glycol)-block-poly(n-butylmethacrylate), or mixtures thereof.

24. (Withdrawn) The composition of Claim 1 wherein the biobeneficial component includes a random, block, graft or brush copolymer comprising:

(a) at least one of  ; and

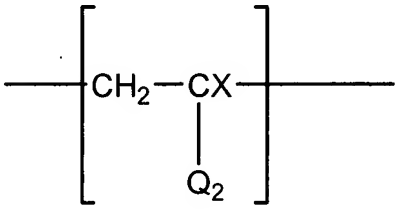
(b) at least one of  ,

wherein

(c) X is hydrogen or methyl group;

(d) R is methyl, ethyl, n-propyl, iso-propyl, n-butyl, sec-butyl, iso-butyl, tert-butyl, lauryl, or 2-hydroxyethyl; and

(e) Q is a fragment providing the copolymer with biobeneficial properties.

25. (Withdrawn) The composition of Claim 24 wherein the biobeneficial component copolymer further comprises at least one of  ,

wherein Q_2 is a fragment providing the copolymer with biobeneficial or bioactive properties provided that Q_2 is different from Q.

26. (Withdrawn) The composition of Claim 24 wherein Q is derived from poly(alkylene glycols), superoxide dismutate-mimetics (SODm), diazenium diolate type nitric oxide donors, polycationic peptides, polysaccharides, pyrrolidone, vitamin E, sulfonated dextrane, β-phenoxyethanol, N,N-dimethylamino-2-ethanol, mannose-6-phosphate, sulfonic acid, derivatives of sulfonic acid, or mixtures thereof.

27. (Withdrawn) The composition of Claim 26 wherein the polycationic peptides are poly(L-arginine), poly(D-arginine), poly(D,L-arginine), poly(L-lysine), poly(D-lysine), poly(δ-guanidino-α-aminobutyric acid), a racemic mixture of poly(L-arginine) or poly(D-arginine), or mixtures of these.

28. (Withdrawn) The composition of Claim 26 wherein the polysaccharides are heparin or derivatives thereof, glycosaminoglycans, keratan sulfate, chondroitin sulfate, dermatan sulfate, hyaluronic acid, hyaluronates, or blends thereof.

29. (Withdrawn) The composition of Claim 26 wherein the derivatives of heparin are heparinoids, heparin having a hydrophobic counterion, heparan sulfate, heparin salts, or mixtures thereof.

30. (Withdrawn) The composition of Claim 26 wherein the derivatives of sulfonic acid are propanesulfonic acid, 2-methyl-1-propanesulfonic acid, benzenesulfonic acid, 3-methoxy-2-hydroxypropanesulfonic acid, or mixtures thereof.

31. (Original) A medical article comprising an implantable medical device and a coating deposited on at least a part of the device, the coating including:

(a) a structural component comprising a linear acrylic homopolymer or linear acrylic copolymer; and

(b) a biobeneficial component comprising a copolymer having an acrylate moiety and a biobeneficial moiety.

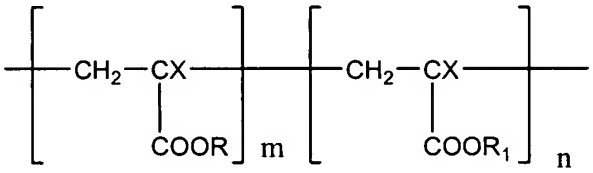
32. (Original) The medical article of Claim 31 wherein the implantable medical device is a stent.

33. (Original) The medical article of Claim 31 wherein the mass ratio between the structural component and the biobeneficial component is between about 99:1 and about 1:1.

34. (Original) The medical article of Claim 31 wherein the mass ratio between the structural component and the biobeneficial component is between about 19:1 and about 9:1.

35. (Original) The medical article of Claim 31 wherein the mass ratio between the structural component and the biobeneficial component is about 3:1.

36. (Original) The medical article of Claim 31 wherein the acrylic homopolymer and linear acrylic copolymer have the structure:



wherein

(a) X is hydrogen or methyl group;

(b) each of R and R_1 is independently methyl, ethyl, n-propyl, iso-propyl, n-butyl, sec-butyl, iso-butyl, tert-butyl, lauryl, or 2-hydroxyethyl;

(c) m is a positive integer; and

(d) n is 0 or a positive integer.

37. (Original) The medical article of Claim 31 wherein the acrylic homopolymer or linear acrylic copolymer are poly(methylmethacrylate), poly(ethylmethacrylate), poly(n-propyl methacrylate), poly(iso-propylmethacrylate), poly(n-butylmethacrylate), poly(n-laurylmethacrylate), poly(2-hydroxyethylmethacrylate), poly(methylmethacrylate-co-2-hydroxyethyl methacrylate), poly(n-butylmethacrylate-co-2-hydroxyethyl methacrylate), or mixtures thereof.

38. (Original) The medical article of Claim 31 wherein the biobeneficial component includes random, block, graft or brush copolymers.

39. (Original) The medical article of Claim 38 wherein the block copolymers include AB-, ABA-, BAB-, ABC-, or ABCBA-block copolymers.

40. (Original) The medical article of Claim 31 wherein the biobeneficial moiety includes fragments derived from poly(alkylene glycols), superoxide dismutate-mimetics (SODm), diazenium diolate type nitric oxide donors, polycationic peptides, polysaccharides, pyrrolidone, vitamin E, sulfonated dextrane, β-phenoxyethanol, N,N-dimethylamino-2-ethanol, mannose-6-phosphate, sulfonic acid, derivatives of sulfonic acid, or mixtures thereof.

41. (Original) The medical article of Claim 40 wherein the poly(alkylene glycols) are poly(ethylene glycol), poly(propylene glycol), poly(tetramethylene glycol), poly(ethylene glycol-co-propylene glycol), poly(ethylene oxide-co-propylene oxide), or mixtures thereof.

42. (Original) The medical article of Claim 40 wherein the polycationic peptides are poly(L-arginine), poly(D-arginine), poly(D,L-arginine), poly(L-lysine), poly(D-lysine), poly(δ-guanidino-α-aminobutyric acid), a racemic mixture of poly(L-arginine) or poly(D-arginine), or mixtures thereof.

43. (Original) The medical article of Claim 40 wherein the polysaccharides are heparin or derivatives thereof, glycosaminoglycans, keratan sulfate, chondroitin sulfate, dermatan sulfate, hyaluronic acid, hyaluronates, or mixtures thereof.

44. (Original) The medical article of Claim 43 wherein the derivatives of heparin are heparinoids, heparin having a hydrophobic counterion, heparan sulfate, heparin salts, or mixtures thereof.

45. (Original) The medical article of Claim 44 wherein the heparin salts are sodium heparin, potassium heparin, lithium heparin, calcium heparin, magnesium heparin, ardeparin sodium, or mixtures thereof.

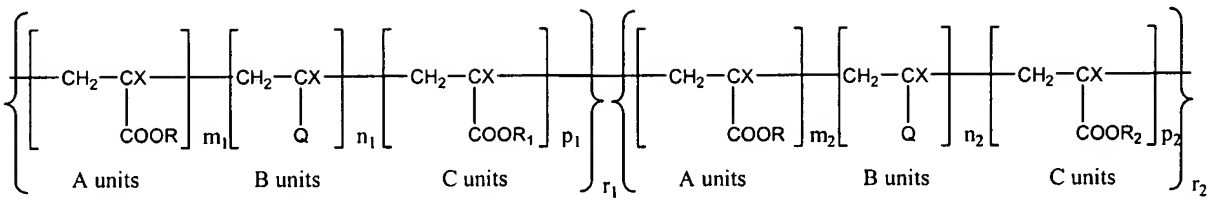
46. (Original) The medical article of Claim 40 wherein the derivatives of sulfonic acid are propanesulfonic acid, 2-methyl-1-propanesulfonic acid, benzenesulfonic acid, 3-methoxy-2-hydroxypropanesulfonic acid, or mixtures thereof.

47. (Original) The medical article of Claim 31 wherein the mass ratio between the acrylate moiety and the biobeneficial moiety is between about 99:1 and about 1:1.

48. (Original) The medical article of Claim 31 wherein the mass ratio between the acrylate moiety and the biobeneficial moiety is between about 19:1 and about 9:1

49. (Original) The medical article of Claim 31 wherein the mass ratio between the acrylate moiety and the biobeneficial moiety is about 3:1.

50. (Original) The medical article of Claim 31 wherein the copolymer composing the biobeneficial component has the formula:



wherein

(a) m_1, n_1, p_1, r_1, m_2, n_2, p_2, and r_2 are all integers;

(b) $m_1 \geq 0$, $n_1 > 0$, $p_1 \geq 0$, $r_1 > 0$; $m_2 \geq 0$, $n_2 > 0$, $p_2 \geq 0$, $r_2 > 0$; and

(c)

(i) if $m_1 = 0$, then $p_1 > 0$;

(ii) if $p_1 = 0$, then $m_1 > 0$; and

(iii) if $m_2 = 0$, then $p_2 > 0$; and

(iv) if $p_2 = 0$, then $m_2 > 0$; and

(v) r_1 and r_2 are the same or different;

(vi) m_1 and m_2 are the same or different;

(vii) n_1 and n_2 are the same or different; and

(viii) p_1 and p_2 are the same or different;

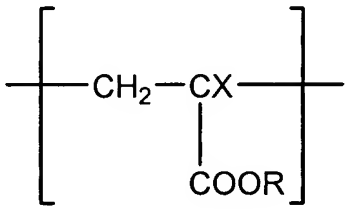
(d) X is hydrogen or methyl group;

(e) each of R and R_1, independently, is methyl, ethyl, n-propyl, iso-propyl, n-butyl, sec-butyl, iso-butyl, tert-butyl, lauryl, or 2-hydroxyethyl; and

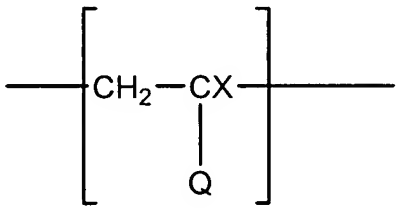
(f) Q is a fragment providing the copolymer with biobeneficial properties.

51. (Original) The medical article of Claim 31 wherein the copolymer composing the biobeneficial component is poly(ethylene glycol)-block-poly(n-butylmethacrylate)-block-poly(ethylene glycol), or poly(n-butylmethacrylate)-block-poly(ethylene glycol)-block-poly(n-butylmethacrylate).

52. (Original) The medical article of Claim 31 wherein the biobeneficial component includes a random, block, graft or brush copolymer composed of:

(a) at least one of 

; and

(b) at least one of 

,

wherein

(c) X is hydrogen or methyl group;

(d) R is methyl, ethyl, n-propyl, iso-propyl, n-butyl, sec-butyl, iso-butyl, tert-butyl, lauryl, or 2-hydroxyethyl; and

(e) Q is a fragment providing the copolymer with biobeneficial properties.

53. (Original) The composition of Claim 52 wherein Q is derived from poly(alkylene glycols), superoxide dismutate-mimetics (SODm), diazenium diolate type nitric oxide donors, polycationic peptides, polysaccharides, pyrrolidone, vitamin E, sulfonated dextrane, β-phenoxyethanol, N,N-dimethylamino-2-ethanol, mannose-6-phosphate, sulfonic acid, derivatives of sulfonic acid, or mixtures thereof.

54. (Original) The composition of Claim 53 wherein the polycationic peptides are poly(L-arginine), poly(D-arginine), poly(D,L-arginine), poly(L-lysine), poly(D-lysine), poly(δ-guanidino-α-aminobutyric acid), a racemic mixture of poly(L-arginine) or poly(D-arginine), or mixtures thereof.

55. (Original) The composition of Claim 53 wherein the polysaccharides are heparin or derivatives thereof, glycosaminoglycans, keratan sulfate, chondroitin sulfate, dermatan sulfate, hyaluronic acid, hyaluronates, or mixtures thereof.

56. (Original) The composition of Claim 53 wherein the derivatives of heparin are heparinoids, heparin having a hydrophobic counterion, heparan sulfate, heparin salts, or mixtures thereof.

57. (Original) The composition of Claim 53 wherein the derivatives of sulfonic acid are propanesulfonic acid, 2-methyl-1-propanesulfonic acid, benzenesulfonic acid, 3-methoxy-2-hydroxypropanesulfonic acid, or mixtures thereof.

58. (Withdrawn) A method for fabricating a medical article comprising depositing a polymeric blend comprising:

(a) a biologically compatible structural component; and

(b) a biobeneficial component comprising a copolymer having a biobeneficial or bioactive moiety.

on at least a portion of the implantable medical device to form a coating.

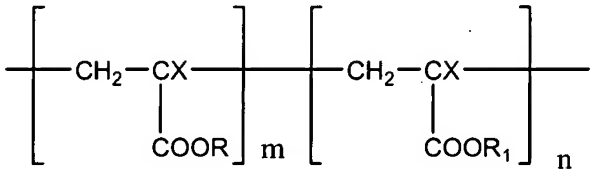
59. (Withdrawn) The method of Claim 58 wherein the implantable medical device is a stent.

60. (Withdrawn) The method of Claim 58 wherein the mass ratio between the structural component and the biobeneficial component is between about 99:1 and about 1:1.

61. (Withdrawn) The method of Claim 58 wherein the mass ratio between the structural component and the biobeneficial component is between about 19:1 and about 9:1.

62. (Withdrawn) The method of Claim 58 wherein the mass ratio between the structural component and the biobeneficial component is about 3:1.

63. (Withdrawn) The method of Claim 58 wherein the acrylic homopolymer or linear acrylic copolymer have the structure:



wherein

(a) X is hydrogen or methyl group;

(b) each of R and R_1 is independently methyl, ethyl, n-propyl, iso-propyl, n-butyl, sec-butyl, iso-butyl, tert-butyl, lauryl, or 2-hydroxyethyl;

(c) m is a positive integer; and

(d) n is 0 or a positive integer.

64. (Withdrawn) The method of Claim 58 wherein the acrylic homopolymer and linear acrylic copolymer are synthesized by polymerizing monomers selected from a group consisting of methylmethacrylate, ethylmethacrylate, n-propyl methacrylate, iso-propylmethacrylate, n-butylmethacrylate, n-laurylmethacrylate, 2-hydroxyethylmethacrylate, and mixtures thereof.

65. (Withdrawn) The method of Claim 58 wherein the step of preparing the polymeric blend includes synthesizing the biobeneficial random, block, graft or brush copolymers.

66. (Withdrawn) The method of Claim 65 wherein the block copolymers include AB-, ABA-, BAB-, ABC-, or ABCBA-block copolymers.

67. (Withdrawn) The method of Claim 65 wherein the step of synthesizing the block copolymers includes copolymerizing an acrylate and a biobeneficial monomer by a method of living, free-radical copolymerization with initiation-transfer agent termination of the living macro chains.

68. (Withdrawn) The method of Claim 67 wherein the acrylate is methylmethacrylate, ethylmethacrylate, n-propyl methacrylate, iso-propylmethacrylate, n-butylmethacrylate, n-laurylmethacrylate, 2-hydroxyethylmethacrylate, or mixtures thereof.

69. (Withdrawn) The method of Claim 67 wherein the biobeneficial monomer includes acryloyl-, methacryloyl-,vinyl, or allyl-modified adducts of superoxide dismutate-mimetics;

acryloyl-, methacryloyl-, vinyl, or allyl-modified diazenium diolate type nitric oxide donors; or acryloyl-, methacryloyl-, vinyl, or allyl-modified polycationic peptides.

70. (Withdrawn) The method of Claim 67 wherein the biobeneficial monomer is 2-acrylamido-2-methyl-1-propanesulfonic acid, poly(ethylene glycol) methacrylate, 3-sulfopropyl acrylate, 3-sulfopropyl acrylate methacrylate, N-vinylpyrrolidone, vinyl sulfonic acid, 4-styrene sulfonic acid, or 3-allyloxy-2-hydroxypropanesulfonic acid.

71. (Withdrawn) The method of Claim 58 wherein the biobeneficial moiety includes fragments derived from poly(alkylene glycols), superoxide dismutate-mimetics (SODm), diazenium diolate type nitric oxide donors, polycationic peptides, polysaccharides, pyrrolidone, vitamin E, sulfonated dextrane, β-phenoxyethanol, N,N-dimethylamino-2-ethanol, mannose-6-phosphate, sulfonic acid, derivatives of sulfonic acid, or mixtures thereof.

72. (Withdrawn) The method of Claim 71 wherein the poly(alkylene glycols) are poly(ethylene glycol), poly(propylene glycol), poly(tetramethylene glycol), poly(ethylene glycol-co-propylene glycol), poly(ethylene oxide-co-propylene oxide), or mixtures thereof.

73. (Withdrawn) The method of Claim 71 wherein the polycationic peptides are poly(L-arginine), poly(D-arginine), poly(D,L-arginine), poly(L-lysine), poly(D-lysine), poly(δ-guanidino-α-aminobutyric acid), a racemic mixture of poly(L-arginine) or poly(D-arginine), or mixtures thereof.

74. (Withdrawn) The method of Claim 71 wherein the polysaccharides are heparin, heparin derivatives, glycosaminoglycans, keratan sulfate, chondroitin sulfate, dermatan sulfate, hyaluronic acid, hyaluronates, or mixtures thereof.

75. (Withdrawn) The method of Claim 74 wherein the derivatives of heparin are heparinoids, heparin having a hydrophobic counterion, heparan sulfate, heparin salts, or mixtures thereof.

76. (Withdrawn) The method of Claim 75 wherein the heparin salts are sodium heparin, potassium heparin, lithium heparin, calcium heparin, magnesium heparin, ardeparin sodium, or mixtures thereof.

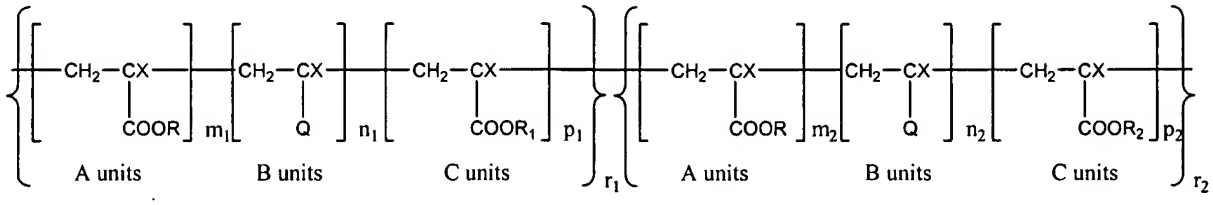
77. (Withdrawn) The method of Claim 71 wherein the derivatives of sulfonic acid are propanesulfonic acid, 2-methyl-1-propanesulfonic acid, benzenesulfonic acid, 3-methoxy-2-hydroxypropane sulfonic acid, or mixtures thereof.

78. (Withdrawn) The method of Claim 58 wherein the mass ratio between the acrylate moiety and the biobeneficial moiety is between about 99:1 and about 1:1.

79. (Withdrawn) The method of Claim 58 wherein the mass ratio between the acrylate moiety and the biobeneficial moiety is between about 19:1 and about 9:1

80. (Withdrawn) The method of Claim 58 wherein the mass ratio between the acrylate moiety and the biobeneficial moiety is about 3:1.

81. (Withdrawn) The method of Claim 58 wherein the copolymer comprising the biobeneficial component has the formula:



wherein

(a) m_1, n_1, p_1, r_1, m_2, n_2, p_2, and r_2 are all integers;

(b) $m_1 \geq 0$, $n_1 > 0$, $p_1 \geq 0$, $r_1 > 0$; $m_2 \geq 0$, $n_2 > 0$, $p_2 \geq 0$, $r_2 > 0$; and

(c)

(i) if $m_1 = 0$, then $p_1 > 0$;

(ii) if $p_1 = 0$, then $m_1 > 0$; and

(iii) if $m_2 = 0$, then $p_2 > 0$; and

(iv) if $p_2 = 0$, then $m_2 > 0$; and

(v) r_1 and r_2 are the same or different;

(vi) m_1 and m_2 are the same or different;

(vii) n_1 and n_2 are the same or different; and

(viii) p_1 and p_2 are the same or different;

(d) X is hydrogen or methyl group;

(e) each of R and R_1, independently, is methyl, ethyl, n-propyl, iso-propyl, n-butyl, sec-butyl, iso-butyl, tert-butyl, lauryl, or 2-hydroxyethyl; and

(f) Q is a fragment providing the copolymer with biobeneficial properties.

82. (Withdrawn) The method of Claim 58 wherein the copolymer comprising the biobeneficial component is poly(ethylene glycol)-block-poly(n-butylmethacrylate)-block-poly(ethylene glycol), poly(n-butylmethacrylate)-block-poly(ethylene glycol)-block-poly(n-butylmethacrylate), or mixtures thereof.